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An Improvement Project in Reducing After-Visit Phone Calls in a Community Pediatric Neurology Clinic

Too Much Communication?

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Abstract

Background and Objective

Physicians strive to provide high-quality clinical care, yet after-visit patient telephone calls create extra demands on a clinician's time. Pediatric neurologists are particularly affected by this challenge given the number of patients with chronic illnesses they serve and the volume of worried parents they support. Added workload coupled with a busy office practice increases the likelihood of early physician burnout, which can have downstream effects on the quality of patient care and patient satisfaction. Using the IHI model for quality improvement (abbreviated QI moving forward), QI methodology was used to determine volume and key drivers of patient/family communications after a visit to a pediatric neurology clinic. Interventions aimed at reducing telephone messages by 15% over a 6-month period were put into place.

Methods

A baseline audit of clinic phone calls was completed in 2019 to develop an overview of after-visit communications. After-visit telephone calls and web-based portal messages were then tracked for 3-week periods in 2019, 2020, and 2021 to understand key trends. A key driver diagram of patient/family communications after a clinic visit was created, and interventions aimed at reducing telephone messages were discussed. These interventions included optimizing MD-RN workflows, synchronous and asynchronous educational initiatives, and changes to our clinic's voicemail phone tree. Our primary outcome measure was the average monthly telephone call volume, and this measure was tracked monthly from November 2020 through December 2022. Similarly, electronic portal message volume was tracked and served as our balancing measure.

Results

Physicians, nurses, and patients were primary drivers of phone call volume. After interventions were in place, the average monthly call volume decreased by 30% from a baseline of 293 calls to 203 calls. This change was sustained for at least 1 year. The average monthly portal message volume remained consistent throughout the study period at 359 messages.

Discussion

Both physicians and nurses agree that after-visit patient communication affects their workload. This study illustrates that QI methodology can be used to plan and implement interventions aimed at decreasing after-visit telephone calls.

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Introduction

Problem Description

Physicians strive to provide high-quality clinical care, yet after-visit patient telephone calls create extra demands on a clinician's time. Pediatric neurologists are particularly affected by this challenge given the number of patients with chronic illnesses they serve and the volume of worried parents they support. It is well known that physicians who care for patients with chronic illnesses spend a significant amount of time after a clinic visit providing and coordinating care.[1] Much of this work is spent on documentation within the health record which is more of an administrative burden than a patient quality tool.[2] In fact, some neurologists have estimated working up to 2 or 3 additional hours/day since implementation of an electronic health record.[2] Added documentation burden coupled with a busy office practice increases physician stress. This stress can risk early physician burnout, and strategies targeting process improvements in workflow and reduction of administrative tasks can lead to reduced burnout.[3] Associated consequences of physician burnout have been well documented in the literature with effects ranging from decreased patient quality of care to increased risk of medical errors.[4]

Available Knowledge and Rationale

To date, there is no QI study that addresses the volume of telephone calls experienced by an outpatient pediatric neurology clinic and describes interventions aimed at reducing those after-visit phone calls. There are publications that address the topic of after-visit communication but none in the same way this study seeks to report it. Loder and Geweke[5] characterize the nature and volume of patient-related telephone calls within a specialty headache practice, while Letourneau et al.[6] explore the benefits of using a telephone nursing line to meet the needs of patients belonging to a child neurology practice. Deeds et al.[7] present the impact of using an after-visit summary dot phrase, a feature of the electronic health record that allows you to insert frequently used phrases or text into a clinical note after keying in a descriptive abbreviation or word related to its content, while Dexter et al.[8] found that implementation of an electronic messaging portal may not always lead to a reduction in telephone calls or workload.

Specific Aims

Our primary aim was to reduce after–clinic visit telephone messages by 15% over a six-month period by optimizing MD-RN workflows, enhancing in office patient education, and streamlining patient education materials. Once we achieved a significant reduction in message volume, a secondary goal was to sustain this change over a period of a year. We tracked electronic portal message volume as a balancing measure and followed this metric to determine whether a reduction in telephone messages led to an unintended increase in patient portal messages.

Methods

Context

This report describes a QI initiative at a Texas Children's Hospital's (TCH) satellite community pediatric neurology clinic. The Neurology clinic at TCH's West Campus serves 75–100 new patients monthly. During this project, there were 6 practicing neurologists of whom 5 were full-time physicians and 3 were subspecialty trained, 2 in headache and 1 in epilepsy. Institutional review board approval was not sought for this initiative because no patient information was used to conduct the project. Revised Standards for QI Reporting Excellence (SQUIRE 2.0) guided manuscript writing.[9]

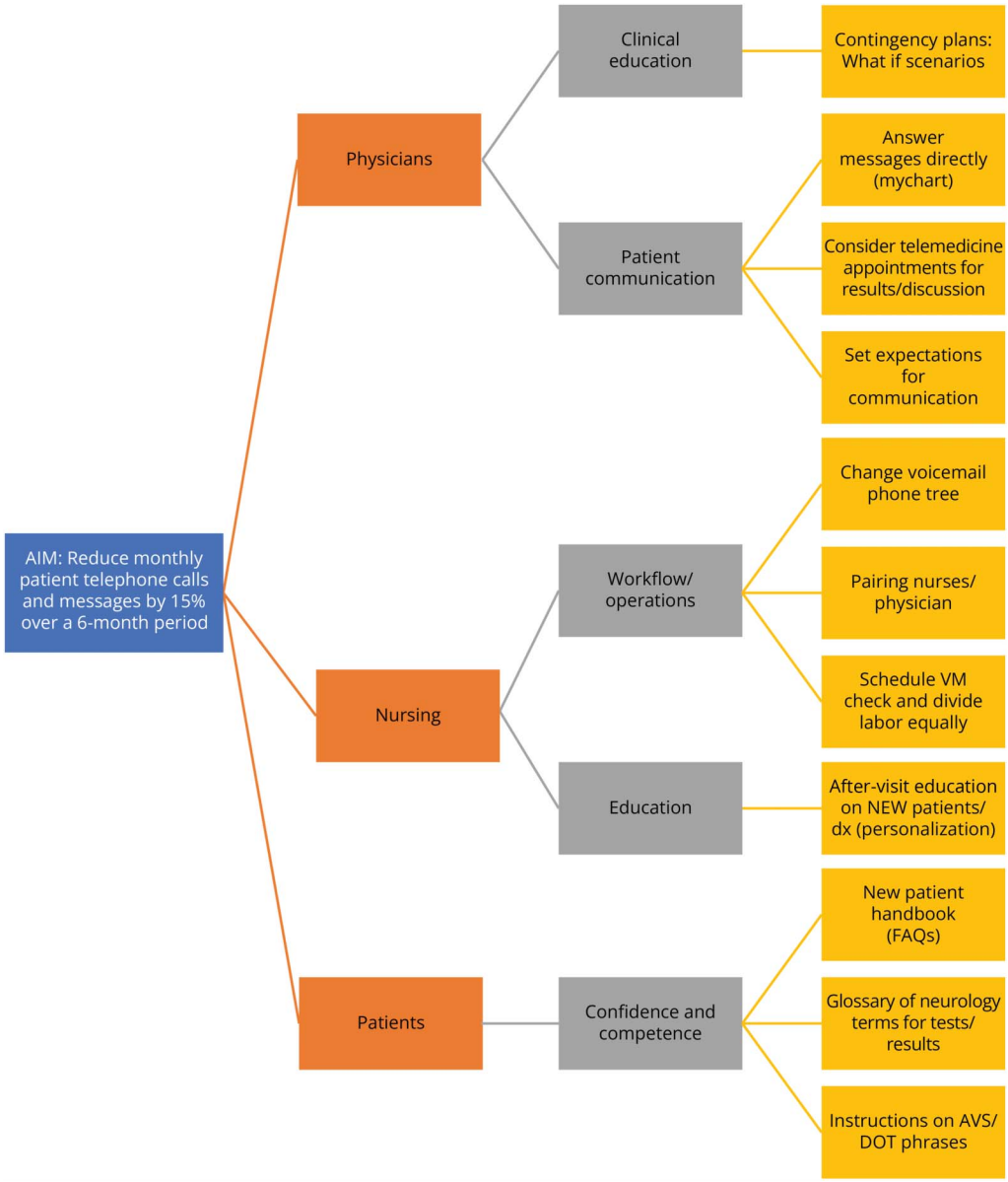
Interventions

A manual audit of all clinic phone call communication was performed for a 3-week period in 2019 to generate a basic overview of after-visit communication. Then, 3-week snapshots in 2019, 2020, and 2021 were obtained for baseline volume of after-visit telephone calls and web-based portal messages. A survey assessing physician and nursing perceptions of after-visit communication and potential strategies to minimize them was sent out in December 2020. Individual group meetings occurred for both neurologists and nurses to solicit specific feedback not addressed by the survey in January 2021. Results of the survey feedback sessions were collectively reviewed in a meeting in February 2021. Results/trends of message audits from 2019 to 2021 were presented, and QI methodology was used to determine key drivers of patient/family communications after clinic visits. Proposed change ideas aimed at reducing telephone messages were selected after a thorough dialog (Figure 1) and included broad themes of workflow changes between RNs-MDs, asynchronous and synchronous educational initiatives, and clinic voicemail tree changes.

Workflow Changes

Modifications to the physician-RN workflow were also reviewed, and consensus reached that individual physicians would be designated a specific nurse to aid in the distribution of patient call workload. Specifically, attention was given to assign different nurses to our neurologic subspecialists (epileptologist/trained in headache). This change was referred to as the provider split and allowed MDs and patients to direct communications to 1 specific/assigned RN, limiting the number of involved people in any given communication loop and allowing for improved continuity of care for patients. Scripting around the FLU/COVID vaccines in our patient population was standardized and implemented around this time. RNs were also asked to elicit pertinent clinical information such as medication, dose, compliance, and presence of illness from caregivers when reporting breakthrough seizures or migraine headaches to MDs. To assist with ease of documentation and standardization of the abovementioned information, RNs developed a dot phrase to share within their group and standardize the telephone encounter in the electronic health record. Physicians were requested to answer portal messages directly, but RNs often intervened to provide follow-up clinical questions if further clarification was

Figure 1 Key Driver Diagram



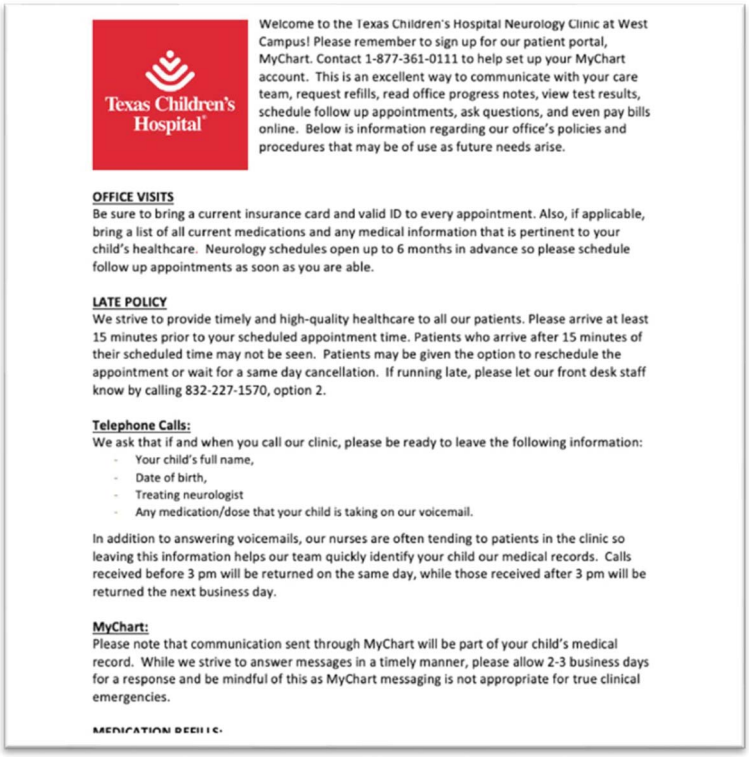
necessary for the MD. These workflow changes were implemented immediately after the group meeting in February 2021, and RNs began updating patient communication preferences, such as "mom is OK with receiving a message through the portal" or "mom would prefer a call back" in March–May 2021.

Synchronous and Asynchronous Educational Initiatives

Several educational interventions were implemented throughout the project course, and these consisted of both synchronous and asynchronous activities. Physicians were encouraged to review contingency plans for breakthrough seizures or migraine headaches, indications for rescue medications and criteria for administration, ER return precautions, and to copy and paste plans from their progress notes to a patient's after-visit summary report. Phone numbers for scheduling various tests and procedures were also included on the after-visit summary for caregivers to have ownership on scheduling. For in-person visits, RNs added another layer of support often summarizing the visit with caregivers, reviewing medication titration plans, and answering any questions about clinic logistics that MDs may have missed during their office visit.

Educational content including an epilepsy handout was created for families to familiarize themselves with the diagnosis and use credible resources should they wish to learn more about the diagnosis. A new patient handout outlined common clinic policies and procedures (Figures 2 and 3). Existing and new educational material was translated into Spanish to serve a broader community of patients and families.

Figure 2 New Patient Handout



Texas Children's Hospital

Welcome to the Texas Children's Hospital Neurology Clinic at West Campus! Please remember to sign up for our patient portal, MyChart. Contact 1-877-361-0111 to help set up your MyChart account. This is an excellent way to communicate with your care team, request refills, read office progress notes, view test results, schedule follow up appointments, ask questions, and even pay bills online. Below is information regarding our office's policies and procedures that may be of use as future needs arise.

OFFICE VISITS

Be sure to bring a current insurance card and valid ID to every appointment. Also, if applicable, bring a list of all current medications and any medical information that is pertinent to your child's healthcare. Neurology schedules open up to 6 months in advance so please schedule follow up appointments as soon as you are able.

LATE POLICY

We strive to provide timely and high-quality healthcare to all our patients. Please arrive at least 15 minutes prior to your scheduled appointment time. Patients who arrive after 15 minutes of their scheduled time may not be seen. Patients may be given the option to reschedule the appointment or wait for a same day cancellation. If running late, please let our front desk staff know by calling 832-227-1570, option 2.

Telephone Calls:

We ask that if and when you call our clinic, please be ready to leave the following information:

- Your child's full name,
- Date of birth,
- Treating neurologist
- Any medication/dose that your child is taking on our voicemail.

In addition to answering voicemails, our nurses are often tending to patients in the clinic so leaving this information helps our team quickly identify your child our medical records. Calls received before 3 pm will be returned on the same day, while those received after 3 pm will be returned the next business day.

MyChart:

Please note that communication sent through MyChart will be part of your child's medical record. While we strive to answer messages in a timely manner, please allow 2-3 business days for a response and be mindful of this as MyChart messaging is not appropriate for true clinical emergencies.

MEDICATION REFILLS:

Voicemail Phone Tree Changes

Discussions about the clinic's voicemail phone tree took place at the onset of the project; however, changes were not implemented until the spring of 2022. Outgoing message was changed and requested callers to provide patient's name, date of birth, and physician on the voicemail before expecting a call back and were also given the option to communicate with their health care team through our web-based portal. Families were encouraged to send portal message directly to their physician if the issue was nonemergent.

Measures

Outcome Measure

The primary outcome measure for this study is the volume of monthly telephone messages.

Balancing Measure

The primary balancing measure for this study is the volume of monthly portal messages.

Process Measure

While not formally tracked, process measures used for reducing after-visit phone calls included changes in physician and nurse workflows, compliance with contingency planning and distribution of educational handouts, documentation of communication preferences for clinic patients, and changes to the voicemail phone tree.

Analysis

Descriptive statistics were performed over the manual 3-week audit in 2019 to generate an understanding of physician message volume, content of messages, ratio of phone calls to web-based communications, and distribution of messages by provider. Snapshots of patient phone call and web-based portal message volumes were obtained for similar 3-week periods in 2019, 2020, and 2021. Two run charts were used to track monthly telephone and portal message volume from November 2020 to December 2022. Monthly volumes were then plotted on separate statistical process control charts using Excel QI Macros to determine the impact of our interventions on message volume. The American Society of Quality rule of 8 successive points on the same side of the center line was applied to detect when a centerline shift in monthly volume occurred.[10]

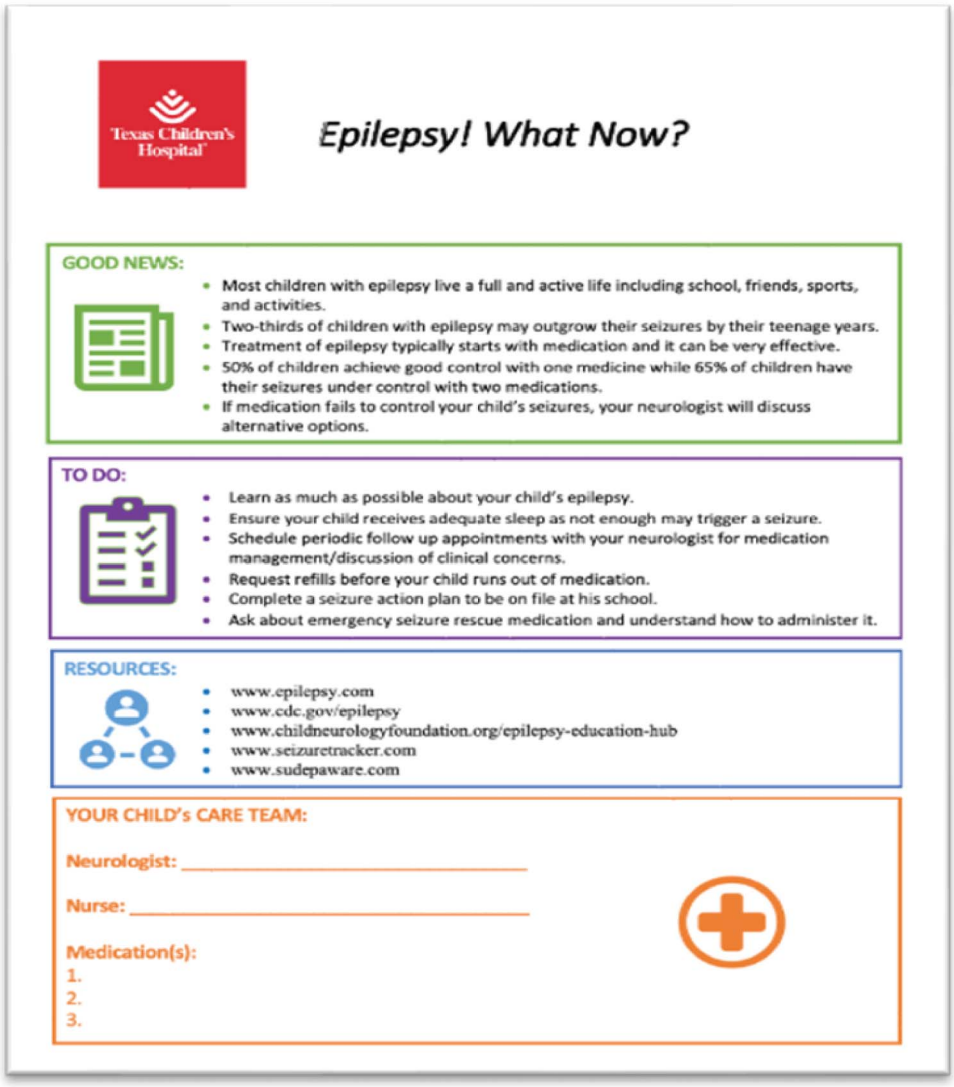
Standard Protocol Approvals, Registrations, and Participant Consents

No IRB application was submitted given that the project was a QI effort.

Data Availability

The author takes full responsibility for the data, the analyses and interpretation, and the conduct of the research. The author has full access to the data and the right to publish any and all data, separate and apart from the guidance of any sponsor.

Figure 3 Epilepsy Handout



Results

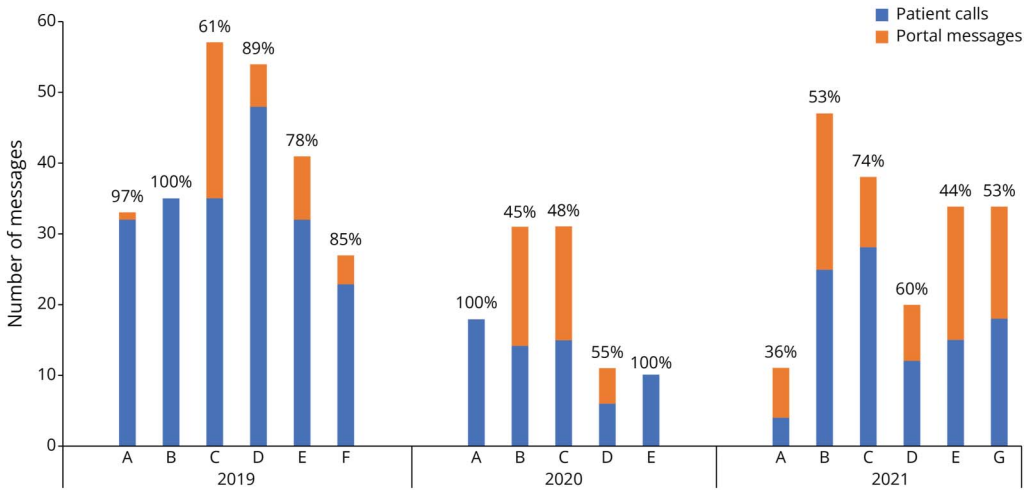
Descriptive Statistics of Clinic Phone Audit in April–May 2019

Our first audit of telephone message volume occurred over a 3-week period in 2019. During this time, clinic nurses manually tracked telephone calls documenting data related to the date of the phone call, the patient's provider, the estimated length of time spent on the call, the reason for the call, and whether the call occurred after an initial visit (new patient) or a return visit (established). Nurses fielded a total of 329 calls during the first audit. Mondays were typically high-volume call days while Fridays were the lower call volume days. The average length of call was estimated to be approximately 6 minutes in duration with 90% of calls coming from return patients. Calls were classified by reason and among them included appointment request, clinical updates, refill requests, and clinical concerns. Of note, headache-related issues contributed to approximately 20% of the call volume compared with 10% of call volume being attributed to clinical concerns regarding seizures.

Telephone Calls vs Portal Messages in 2019, 2020, and 2021

A higher proportion of telephone calls when compared with portal messages were demonstrated during our 3-week audit periods in 2019, 2020, and 2021. The percentage of after-visit communication attributed to portal messages increased over the 3 sampling periods from 17% in 2019 to 38% in 2020 and then to 45% in 2021 while the percentage of after-visit communication attributed to telephone messages decreased over the 3 sampling periods from 83% in 2019 to 62% in 2020 and then to 55% in 2021 (Figure 4).

Figure 4 Sample Distribution of Communications From 2019 to 2021 Audit: Percentage of Telephone Messages vs Portal Messages



Preintervention Survey Results

Neurology physicians and clinic nurses completed a preintervention survey. Key takeaways included a need to update workflows, a preference for web-based portal messaging in response to after-visit patient communication, a desire for training between physicians and nurses to address gaps in communication, and an interest in developing patient education materials for dissemination to our clinic population.

Primary Outcome: Telephone Call Message Volume

After various interventions were implemented over the first half of 2021, the average monthly call volume decreased by 30% from a baseline of 293 calls to 203 calls, and this change was sustained for a period of 1 year (Figure 5). The average monthly portal message volume remained consistent throughout the study period at 359 messages (Figure 4) and did not reveal a compensatory increase.

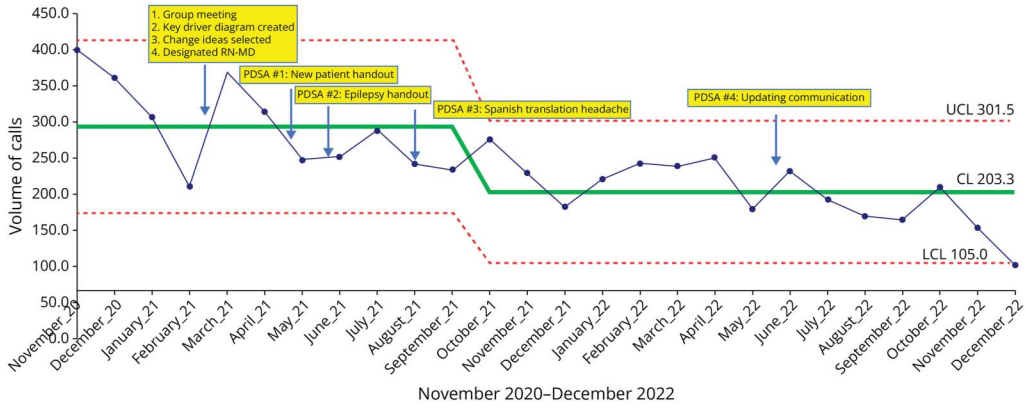
Discussion

This study showed that as interventions were set in place to reduce telephone call volume, we observed a decrease in the monthly call volume that was statistically significant and sustainable for 1 year. Monthly portal message volume increased during the same time frame but not enough that it introduced a new challenge for our medical staff. With interventions including enhanced RN-MD workflows, asynchronous and synchronous educational initiatives, and voicemail phone tree changes, our team was able to decrease monthly call volume in a community-based pediatric neurology clinic. We should mention that external influences such as the COVID-19 pandemic and adaptation of telehealth, increased utilization of web-based portal messaging, and the 21st Century Cures Act of 2021 may have provided added impetus to our planned interventions and driven results in a positive direction.

Pediatric neurologists, like many pediatric subspecialists, care for patients who have complex and chronic medical needs. While between-visit care is inevitable, interventions can be in place to alleviate the burden of after-visit telephone calls on physicians and nurses. In fact, Deeds et al.[7] were the first to demonstrate this experience by using a standardized after-visit summary dot phrase to educate and inform patients on common care needs. As a result, the authors described a 61% reduction in calls per day, while physicians reported fewer inbox requests for refills and test results.[7] We were able to demonstrate a 30% decrease in telephone message volume using similar interventions such as our new patient handout and contingency plans. Much like the after-visit summary dot phrase that Deeds et al.[7] used, our new patient handout addresses common care needs for our patients including an outline of procedures for seeking medication refills, test results, and other administrative actions. Providing a guide of clinic operations for patients and their families and spending the time to educate and review contingency plans at their first office visit can have downstream effects on physician workload and patient message volume.

Loder and Geweke[5] concluded that telephone protocols should be developed to assist ancillary medical staff when dealing with common or frequently encountered clinical scenarios. This sentiment was similarly expressed by our office nurses on our preintervention survey because many opted for an in-service training to discuss agreed upon responses for common clinical situations. Scripting was adopted for clinic policy regarding the FLU and COVID

Figure 5 Statistical Process Control Chart of Message Volume by Month



vaccines, and dot phrases were used to help standardize and streamline RN documentation of telephone calls. And while we ultimately focused our efforts on providing educational interventions for our patients, the development of a telephone protocol for common clinical concerns seems to be a good next step for managing after-visit communication in the future. This strategy would be particularly helpful now that test results are automatically released to both patients/physicians at the same time.

We noted Mondays to be our highest-volume call day, a finding also mirrored by Loder and Geweke.[5] Half (50%) of all their calls were attributed to patients with a chronic headache diagnosis. While the proportion of our telephone calls (20%) were not similar, headache-related concerns did make up our largest proportion of clinically related after-visit phone calls in the 2019 audit. These findings highlight the significant burden and disability a headache diagnosis can have on its patients and suggest that patients and families often hold on to clinical concerns that arise over the weekend and relay messages to their physicians at the beginning of the week. Understanding key trends in message volume may prove beneficial for clinic managers who are often challenged with staffing busy outpatient clinics when limited personnel and resources are available.

Our team did consider the impact of our call reduction strategies on portal message volume. While our average portal volume did increase, it did so without causing a significant change in our workflow (Figure 6). Like our findings, Dexter et al.[8] also reported an increased use of portal messaging in all 4 primary care clinics where internet-based portal messaging was offered and encouraged. However, contrary to our results, they also found an increase in telephone calls in 2 of the 4 clinics implementing web-based messaging. The discrepancy between our findings and Dexter et al.[8] is interesting and may be due to various reasons including advances that have occurred since the article's

Figure 6 Web-Based Portal Message Volume by Month

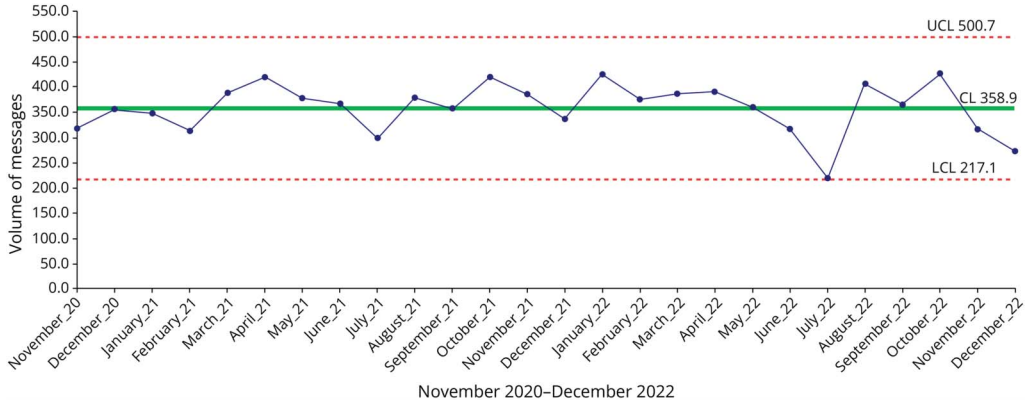
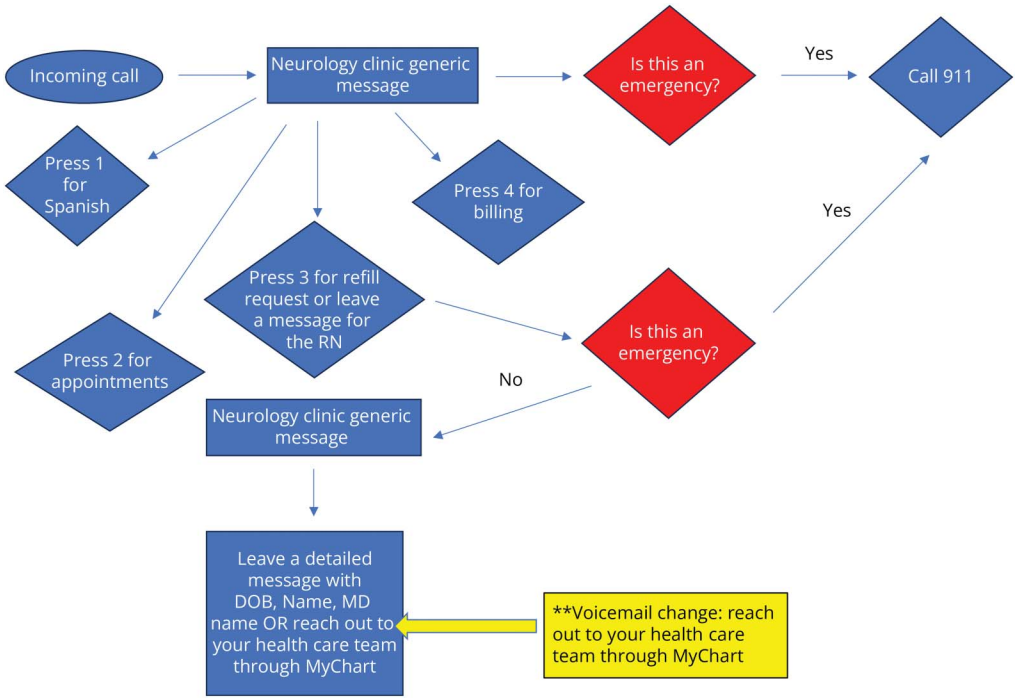


Figure 7 Process Map of Neurology Clinic Voicemail Phone Tree



publication and this project such as updates to web-based portal platforms, enhanced functionality of portal messaging (ability to schedule office visits online), and improved patient comfort and proficiency with portal messaging.

Factors increasing our portal message volume are worth reflection because they relate to our overall reduction in after-visit telephone calls. With the onset of the COVID-19 pandemic, our clinic adapted to a virtual platform to conduct telemedicine visits. Patients typically signed up for a MyChart account if they did not already have one before participating in a video visit. MyChart is a platform that allows patients to access their online medical records, review office notes and results, and send electronic messages to their physician. Although the platforms for video visits and portal messages were different at that time (now they are the same), access to portal messaging likely increased for our patient population as they became more familiar and comfortable with a virtual model of health care. We suspect that the uptick in portal message volume increased as access and utilization of MyChart accounts increased. Successful participation in telehealth may have broken a technological barrier or decreased resistance caregivers may have initially experienced before engagement with telehealth and web-based portals.

The 21st Century Cures Act, pertaining to the electronic release of office visit notes and results to patients, was embraced by Texas Children's Hospital from the onset. Texas Children's Hospital adopted a full transparency stance in compliance with the Cures Act around the spring of 2021 (Figure 5). The impact of the Cures Act and Texas Children's implementation of it went beyond providing patients access to their electronic health record; it may have eliminated the need for some after-visit telephone calls when results returned within normal limits or when caregivers found needed information through access of their clinic's secure web-based portal.

Regardless of preference, web-based portals and messaging is here to stay, and medical professionals must leverage this technology to work smarter not harder. Updating our patient communication preferences allowed our office staff to set patient expectations and force a choice between the 2 communication options; this likely eliminated some of our unnecessary after-visit telephone calls. RNs also reported that if a call back resulted in a patient's voicemail, RNs would send an additional message through the MyChart portal to bridge the gap in communication. Many times, caregivers would respond through the portal in lieu of another telephone call to the clinic.

Changes to the outgoing message on our clinic voicemail tree was one of the last interventions of our initiative. When patients reach the nurse line now, they are encouraged to either leave a detailed message for a call back or to reach out to their health care team through MyChart (Figure 7). Providing patients with the reassurance that their needs will be addressed without a phone conversation may have dissuaded

some from leaving a message and instead encouraged them to use the online portal. Moreover, the 24-7 accessibility of the online portal could offer more flexibility to communicate with the health care team for some families who might have personal or work-related constraints during normal business hours.

There are limitations to this study worth highlighting. First, this quality initiative was conducted at a single outpatient clinic; therefore, our specific population largely limits the generalizability of our results. Demographic data were not collected, and therefore, it is unclear how patient and caregiver age, socioeconomic status, presence of a language barrier, and proficiency and accessibility to technology may have contributed to communication practices and engagement with the medical team.

Second, our practice group consists of 3 subspecialist neurologists, 2 trained in headache and 1 epileptologist. These specialists care for children with complex medical needs and likely experience higher than average call volumes from their patients. This fact may not necessarily reflect a gap in care but rather demonstrate the inevitable nature of caring for children with chronic medical issues, some of which are refractory. Comparison data from similar specialty clinics were not available to benchmark against our findings, and consequently, it is unknown whether our baseline call volume was within an expected range for this patient population.

Third, our team did not measure physician compliance with contingency planning or distribution of educational handouts, so it is unclear whether the reduction in after-visit telephone calls can be attributed to these interventions because neither were tracked or quantified. It would have been helpful to create a shared dot phrase to streamline the build of contingency plans for our physicians; however, implementation would have required more consensus among the physicians.

Fourth, overall rates of portal participation were not tracked. This represents yet another limitation to this study. While data support increasing portal message volume over the project timeline, there is insufficient evidence to suggest a preference shift from telephone calls to portal messaging within our patient population. Documentation of patient preferences before the onset of the project may have been helpful to establish a baseline from which the impact of our interventions could have been measured.

Fifth, we did not administer a postintervention survey to our nurses and physicians. Doing so would have been helpful to gauge the impact of decreased after-visit calls on physicians and nurse workload. This measure would have been meaningful to revise current practices and plan future interventions for our clinic.

Last, external influences such as the COVID-19 pandemic, adaptation of telehealth, and the Cures Act of 2021 likely contributed to an overall reduction in after-visit telephone calls. And while it is difficult to determine to what extent these things played a role, it is likely that the combination of these factors coupled with our interventions helped us achieve, exceed, and sustain our goal.

TAKE-HOME POINTS

- QI methodology can be used to reduce after-visit communications in a pediatric neurology clinic.
- Targeted patient education coupled with trained clinical staff can equip caregivers with the tools necessary to manage common after-visit clinical scenarios.
- Downstream effects of improved patient self-efficacy and competence may limit after-visit needs and reduce workload for a busy clinician.
- Regardless of preference, web-based patient-physician messaging is here to stay.
- Physicians must adapt to patient communication preferences and work efficiently to balance the needs of their patients while they are in clinic visits and when they are not.

This study illustrates that QI methodology can be used to plan and implement interventions aimed at reducing after-visit communication in a busy pediatric neurology practice. Interest in this subject matter is evident given previous work relating to the relationship of indirect patient care on physician workload and burnout. As technology continues to advance and patients/caregivers become savvy, health care teams must find a way to bridge the gap of meeting after-visit care needs with increasing clinical demands. Further study in this realm would serve to benefit physicians, nurses, and patients alike.

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Appendix Author

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Thara R. Bala, MD, MHA	Department of Pediatrics, Section on Neurology, Baylor College of Medicine	Drafting/revision of the article for content, including medical writing for content; major role in the acquisition of data; study concept or design; analysis or interpretation of data

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